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EXAMINER

PIZIALI, JEFFREY J

ART UNIT

PAPER NUMBER

2629

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/699,142	<b>Applicant(s)</b> PARK ET AL.	
	<b>Examiner</b> Jeff Piziali	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 4,12-14,18,19 and 26-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-11,15-17,20-25 and 38-40 is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Election/Restrictions*

2. Applicants' election without traverse of Species I (i.e., claims 1-3, 5-11, 15-17, 20-25, and 38-40) in the reply filed on 9 February 2007 is acknowledged and appreciated.
3. Claims 4, 12-14, 18, 19, and 26-37 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9 February 2007.
4. Applicants are reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Specification***

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicants' cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Objections***

6. Claims 7 and 8 are objected to because of the following informalities: "each of the sensing part" should be changed to "each of the sensing parts". Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 40 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. The term "near the first gate electrode" in claim 40 is a relative term which renders the claim indefinite. The term "near" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It would be unclear to one having ordinary

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skill in the art precisely how close the portion of the gate insulation layer must be placed to the first gate electrode to qualify as being "near" one other.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-3, 5-11, 15-17, 20-25, and 38-40 are rejected under 35 U.S.C. 102(b) as being anticipated by *Hack et al (US 5,204,661 A)*.

Regarding claim 1, Hack discloses a liquid crystal display panel (see Column 3, Lines 37-45) comprising: a first substrate (see Column 5, Line 65 - Column 6, Line 12) including a plurality of pixels [Fig. 2; 42] and a plurality of sensing parts [Fig. 2; 12 & 14], each of the sensing parts generating an output signal [Fig. 2; 28] containing location information in response to an input signal [Fig. 2; D<sub>s</sub>], the location information indicating a location where the input signal is inputted; a second substrate connected to the first substrate, the second substrate facing the first substrate; and a liquid crystal layer interposed between the first substrate and the second substrate (see Column 4, Line 52 - Column 5, Line 64).

Regarding claim 2, Hack discloses the input signal corresponds to an incident light, the incident light passing through the second substrate to reach the sensing part (see Column 6, Lines

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33-46), and the sensing part outputting an analog signal in response to the incident light (see Column 9, Lines 11-12).

Regarding claim 3, Hack discloses the incident light is an infrared light (see Column 11, Line 39).

Regarding claim 5, Hack discloses a liquid crystal display device (see Column 3, Lines 37-45) comprising: a liquid crystal display panel (see Column 5, Line 65 - Column 6, Line 12) including a plurality of pixels [Fig. 2; 42] and a plurality of sensing parts [Fig. 2; 12 & 14], each of the sensing parts generating an analog signal (see Column 9, Lines 11-12) containing location information in response to an incident light (see Column 6, Lines 33-46), the location information indicating a location where the light enters; and a control part [Fig. 1; 8] receiving the analog signal and transforming the analog signal into a digital signal, the liquid crystal display device being controlled in response to the digital signal (see Column 4, Line 52 - Column 5, Line 64).

Regarding claim 6, Hack discloses each of the pixels includes a gate line [Fig. 2;  $A_n$ ], a data line [Fig. 2;  $D_s$ ], a first switching device [Fig. 2; 40] electrically connected to the gate line and the data line, and a pixel electrode [Fig. 2; @ 42] electrically connected to the first switching device (see Column 5, Lines 43-64).

Regarding claim 7, Hack discloses each of the sensing part comprises: a second switching [Fig. 2; 32] device being turned on in response to the incident light to output a first signal that is applied to the data line; a third switching device [Fig. 2; 30] outputting the first signal provided from the second switching device in response to a second signal applied to the gate line; and a first sensor line [Fig. 2; 28] receiving the first signal from the third switching device and transmitting the first signal to the control part (see Column 6, Lines 14-68).

Regarding claim 8, Hack discloses each of the sensing part further comprises a second sense line [Fig. 2; A<sub>n</sub>] (see Column 5, Lines 19-64).

Regarding claim 9, Hack discloses the second switching device includes a second gate electrode diverging from the second sensor line, a second source electrode diverging from the data line, and a second drain electrode being electrically connected to the third switching device (see Fig. 2; Column 5, Lines 19-64).

Regarding claim 10, Hack discloses the third switching device includes a third gate electrode diverging from the gate line, a third source electrode being electrically connected to the second switching device, and a third drain electrode being electrically connected to the first sensor line (see Fig. 2; Column 5, Lines 19-64).

Regarding claim 11, Hack discloses the first switching device, the second switching device and the third switching device correspond to an amorphous-silicon thin film transistor (see Column 11, Lines 5-19).

Regarding claim 15, Hack discloses the pixel electrode comprises a transparent electrode and a reflective electrode including a transmission portion and a reflection portion, the reflective electrode facing the transparent electrode (see Column 4, Line 52 - Column 5, Line 29).

Regarding claim 16, Hack discloses the reflective electrode comprises an opening window exposing the sensing part, the incident light passing through the opening window and arriving at the sensing part (see Column 7, Line 35 - Column 8, Line 18).

Regarding claim 17, Hack discloses the incident light is an infrared light (see Column 11, Line 39).

Regarding claim 20, Hack discloses the sensor line, the second source electrode and the second drain electrode of the second switching device comprise a transparent and electrically conductive material (see Column 4, Line 52 - Column 5, Line 29).

Regarding claim 21, Hack discloses the pixel electrode comprises a transparent electrode and a reflective electrode including a transmission portion and a reflection portion, the reflective



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electrode facing the transparent electrode (see Column 5, Lines 43-64 & Column 11, Lines 5-19).

Regarding claim 22, Hack discloses the reflective electrode comprises an opening window exposing the second switching device, the infrared light (see Column 11, Line 39) passing through the opening window and arriving at the second switching device (see Column 5, Lines 43-64 & Column 11, Lines 5-19).

Regarding claim 23, Hack discloses the control part comprises: a connecting part (see Fig. 1) to receive the analog signal and transform the analog signal into a digital signal in response to a first control signal; a first driving part [Fig. 1; 8] to drive the liquid crystal display panel in response to a second control signal; and a second driving part [Fig. 1; 6] to providing the connecting part with the first control signal and receive the digital signal from the connecting part to output the second control signal (see Column 4, Line 20 - Column 5, Line 42).

Regarding claim 24, Hack discloses the first driving part is formed in a chip, the chip being mounted on the liquid crystal display panel, the chip having the connecting part therein (see Column 4, Lines 21-51).

Regarding claim 25, Hack discloses the first driving part and the connecting part are integrally formed in the liquid crystal display panel (see Figs. 1 & 2; Column 4, Line 20 - Column 5, Line 42).

Regarding claim 38, Hack discloses method of manufacturing a liquid crystal display device (see Column 3, Lines 37-45) comprising: forming a first substrate (see Column 5, Line 65 - Column 6, Line 12) including a plurality of pixels [Fig. 2; 42] and a plurality of sensing parts [Fig. 2; 12 & 14], each of the sensing parts generating an output signal [Fig. 2; 28] containing location information in response to an input signal [Fig. 2; D<sub>s</sub>], the location information indicating a location where the input signal is inputted; forming a second substrate; combining the first substrate and the second substrate; and forming a liquid crystal layer between the first substrate and the second substrate (see Column 4, Line 52 - Column 5, Line 64).

Regarding claim 39, Hack discloses the first substrate is formed by: forming a plurality of pixels [Fig. 2; 42] and a plurality of sensing parts [Fig. 2; 12 & 14], each of the pixels including a gate line [Fig. 2; A<sub>n</sub>], a data line [Fig. 2; D<sub>s</sub>] and a first switching device [Fig. 2; 40], each of the sensing parts including a first sensor line [Fig. 2; 28], a second sensor line [Fig. 2; A<sub>n</sub>], a second switching device [Fig. 2; 32] and a third switching device [Fig. 2; 30] (see Column 5, Lines 43-64); forming a transparent electrode being electrically connected to the first switching device; and forming a reflective electrode including a transmission portion and a reflection portion, the second switching device being exposed via the transmission portion (see Column 6, Lines 14-68).

Regarding claim 40, Hack discloses the pixels and the sensing parts are formed by: forming a first conductive pattern including a gate line [Fig. 2; A<sub>n</sub>], a first gate electrode of the

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first switching device, a third gate electrode of the third switching device, a first sensor line [Fig. 2; 28] and a second gate electrode of the second switching device, the first gate electrode and the third gate electrode diverging from the gate line, the second gate electrode diverging from the first sensor line; forming a gate insulation layer on the first conductive pattern; forming a semiconductor layer on a portion of the gate insulation layer, the portion being disposed near the first gate electrode, the second electrode and the third gate electrode; and forming a second conductive pattern on the semiconductor layer and the gate insulation layer, the second conductive pattern including the data line, a first source electrode and a first drain electrode of the first switching device, a second source electrode and a second drain electrode of the second switching device, a second sensor line, and a third source electrode and a third drain electrode of the third switching device, the first source electrode and the second source electrode diverging from the data line, the third source electrode diverging from the second sensor line (see Column 5, Lines 4-64).

### *Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. Wu (US 2002/0030768 A1), Nakajima (US 7,158,129 B2), Mochizuki (US 7,034,309 B2), Abileah et al (US 7,009,663 B2), den Boer et al (US 6,947,102 B2), Ogawa et al (US 6,243,069 B1), Ando et al (US 6,184,946 B1), Knapp et al (US 5,838,308 A), Shannon et al (US 5,485,177 A), Bird (US 5,386,543 A), Tsujikawa (US 5,168,382 A), and Tsujikawa et al (US 5,051,570 A) are cited to further evidence the state of the art pertaining to liquid crystal display panels.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jeff Piziali  
30 April 2007